REMARKS

In view of the following discussion, none of the claims now pending in the application are made obvious under the provisions of 35 U.S.C. §103. Claim 5 was amended. Thus, all of the claims are now in allowable form.

I. REJECTION OF CLAIMS 1-13 AND 15-21 UNDER 35 U.S.C. § 103

A. Claims 1, 4, 5, 8-11, 13, 15-18 and 21

The Examiner has rejected claims 1, 4, 5, 8-11, 13, 15-18 and 21 in the Office Action as being unpatentable under 35 U.S.C. § 103 over Wang et al. (U.S. Patent Publication No. 2001/0024964, published on September 27, 2001, hereinafter referred to as "Wang") in view of Kogiantis et al. (U.S. Patent Publication No. 2002/0068611, published on June 6, 2002, hereinafter referred to as "Kogiantis") and (EP 0740430, hereinafter referred to as "Ohashi"). The rejection is respectfully traversed.

Wang discloses transmission diversity. The base transceiver station can make a decision as to changing transmission diversity in response to the power control message sent by the mobile station. (See Wang, Abstract).

Kogiantis discloses a method for simultaneously conveying information to multiple mobiles with multiple antennas. (See Kogiantis, Abstract).

Ohashi discloses a diversity radio communication system where an antenna switch circuit switches the first and second antennas to connect them to the transmit/receive switch circuit. (See Ohashi, p. 6, ll. 1-8).

The Examiner's attention is directed to the fact that Wang, Kogiantis and Ohashi, alone or in any combination, fails to describe or to suggest the novel concept of switching between the first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein the predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station, as positively claimed. Specifically, independent claims 1, 5, 8, and 13 positively recite:

1. A radio receiver comprising:

first and second antennas connected to a radio frequency processing circuitry by a radio frequency switch; and

a radio frequency switch control in communication with the radio frequency switch, the radio frequency switch control for switching between the first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein the predefined schedule is scheduled by a base station, wherein the sequence of scheduled packet bursts comprises a first signal burst received via the first antenna and a second signal burst received via the second antenna, wherein the first signal burst and the second signal burst comprise identical packets of a common message. (Emphasis added).

5. A method of maintaining a controlled quality of service in a wireless communication system, comprising:

receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station to switch between a first antenna and a second antenna;

enabling the first antenna to receive a first packet burst in accordance with the predefined schedule;

enabling the second antenna to receive a second packet burst in accordance with the predefined schedule, wherein the first packet burst and the second packet burst comprise identical packets of a common message;

recording the received bursts as soft information in a storage medium; and

combining the soft information from the first and second bursts into a single message. (Emphasis added).

8. A method of achieving a quality of service control in a wireless local area network communication system, comprising:

transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of the plurality of packet bursts comprise identical packets of a common message; and

receiving each of the packet bursts individually at one of a plurality of antennas in accordance with a predefined schedule, where the predefined schedule is scheduled by a base station and is used to select one of the plurality of antennas for receiving each of the packet bursts. (Emphasis added).

13. A communication system for coupling a transmitter and a receiver adapted for receiving a first signal burst and a second signal burst by a first antenna and a second antenna respectively, and responding to the two signal bursts to communicate a single unified message at the receiver; wherein:

the first and second signal bursts are sequentially separated in time in

accordance with a predefined schedule, wherein the predefined schedule is scheduled by a base station, wherein the first signal burst and the second signal burst comprise identical packets of a common message;

the first and second antennas are sequentially enabled in accordance with the predefined schedule to communicate with a storage medium at the receiver; and

enabling a representation of the single unified message by responding to the first and second signal bursts. (Emphasis added).

In one embodiment of the present disclosure, a method and system are for the reception of radio signals using a protocol assisted switched diversity antenna system. One aspect of the present disclosure is that the antennas are switched in response to packet bursts or signal bursts that are scheduled or ordered by time intervals. Namely, the antennas are switched in accordance with a predefined schedule, wherein the predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station. Thus, the packet bursts are first scheduled and then sent to the receiver in accordance with that predefined schedule. Similarly, the switching of the antennas is also performed in accordance with the predefined schedule.

Furthermore, the independent claims recite the limitation where a series of two signal bursts carrying exactly the same information is sent in accordance with the predefined schedule. In other words, both signal bursts carrying the same information are **pre-scheduled to be sent with the same information**. (See e.g., Specification, para. [0020]-[0021]).

The alleged combination (as taught by Wang and Ohashi) fails to render obvious claims 1, 5, 8 and 13 because the alleged combination fails to describe or suggest the novel concept of switching between the first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein the predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations

having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station. The Examiner concedes that Wang and Ohashi fail to describe or suggest the above limitations. However, the Examiner asserts that Kogiantis bridges the substantial gap left by Wang and Ohashi.

Kogiantis fails to bridge the substantial gap left by Wang and Ohashi because Kogiantis also fails to describe or suggest switching between the first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein the predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station. Notably, the Examiner attempts to read Kogiantis on the present claims by truncating the relevant limitation. The Examiner asserts that Kogiantis discloses switching between antennas in response to a predefined schedule. However, the Examiner is directed to the fact that the claims recite a predefined schedule of a sequence of scheduled packet bursts. In other words, the present claims specify that the predefined schedule is determined by the sequence of scheduled packet bursts. In stark contrast, Kogiantis clearly discloses that the scheduling algorithm selects an antenna based upon channel condition information. (See Kogiantis, para. [0014], [0021] and [0024]).

Moreover, the claims specify that the predefined schedule of a sequence of scheduled packet bursts are used to switch between a first and second antenna. For example the predefined schedule would allow the first antenna to transmit/receive, then allow the second antenna to transmit/receive, then allow the first antenna to transmit/receive, then allow the second antenna to transmit/receive, and so forth. In stark contrast, Kogiantis uses a scheduling algorithm to simply select an antenna for a particular subscriber. That is, Kogiantis fails to describe or suggest that the scheduling algorithm is used to switch back and forth between two antennas.

In addition, the Examiner is attempting to combine three references that use mutually exclusive methods for antenna control. The Examiner is reminded that the

MPEP § 2141.02(VI) requires the Examiner to consider the prior art in its entirety. "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention". MPEP § 2141.02(VI), W.L. Gore & Associates, Inc., v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed Cir. 1983), cert. denied, 469 U.S. 851 (1984). It is impermissible to use the claims as a framework from which to choose among individual references to recreate the claimed invention. W. L. Gore Associates, Inc. v. Garlock, Inc., 220 U.S.P.Q. 303, 312 (1983). If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) MPEP 2143.01(V).

In the present case, modifying any one of the present references with another one of the references would render the reference unsatisfactory for its intended purpose. To illustrate, Wang discloses that an antenna is switched if a number of 1's received is greater than a threshold value B. (See Wang, para. [0025]). In other words, Wang explicitly describes that the antenna is switched only if some threshold is exceeded. Ohashi discloses that the switching is based upon a condition such as a level of received data or detection of an error or that switching is based upon reception of a response. (See Ohashi, p. 2, ll. 20-24). Kogiantis discloses selecting an antenna based upon a scheduling algorithm using channel condition information. (See Kogiantis, para. [0014], [0021] and [0024]). As a result, if Wang was modified by the disclosure of Kogiantis this would render Wang's method of only switching an antenna if a threshold is exceeded unsatisfactory for its intended purpose. Therefore, Wang, Ohashi and Kogiantis cannot be meaningfully combined. In other words, due to the conflicting nature of the mutually exclusive methods of antenna control disclosed by Wang, Ohashi and Kogiantis, there is no suggestion or motivation to make the proposed modification. Therefore, independent claims 1, 5, 8 and 13 are clearly patentable and not rendered obvious by the combination of Wang, Kogiantis and Ohashi.

Furthermore, dependent claims 4, 9, 10, 11, 15-18 and 21 depend from claims 1, 8 and 13, respectively, and recite additional limitations. As such, and for the exact same reason set forth above, claims 4, 9, 10, 11, 15-18 and 21 are also patentable and

not rendered obvious by Wang, Kogiantis and Ohashi. As such, the rejection should be withdrawn.

B. Claims 2, 3 and 12

The Examiner has rejected claims 2, 3 and 12 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Wang, Kogiantis and Ohashi in view of Aaronson, et al. (U.S. Patent No. 6,363,062, issued March 26, 2002, hereinafter referred to as "Aaronson"). The rejection is respectfully traversed.

The disclosures of Wang, Kogiantis and Ohashi are discussed above. Aaronson discloses a communications protocol for packet data. A MAC layer schedules communication bursts taking into account factors such as propagation delay between the different nodes, queuing of data and synchronization of the time transmitting from multiple nodes. (See Aaronson, col. 3, ll. 22-30).

However, Aaronson fails to bridge the substantial gap left by Wang, Kogiantis and Ohashi. Specifically, Aaronson also fails to disclose the novel concept of switching between the first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein the predefined schedule is scheduled by a base station, or transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of the plurality of packet bursts comprise identical packets of a common message.

As stated above, the combination of Wang, Kogiantis and Ohashi simply does not describe or suggest the novel concept of switching between the first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein the predefined schedule is scheduled by a base station, or transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of the plurality of packet bursts comprise identical packets of a common message. This deficiency is not bridged by Aaronson because Aaronson only discloses using MAC protocol to schedule packet data. (See Aaronson, col. 3, ll. 22-30).

Dependent claims 2, 3 and 12 depend from claims 1 and 8, respectively, and recite additional limitations. As such, and for the exact same reason set forth above,

claims 2, 3 and 12 are also not made obvious by the disclosures of Wang, Kogiantis, Ohashi and Aaronson. As such, the rejection should be withdrawn.

C. Claims 5 and 6

The Examiner has rejected claims 5 and 6 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Ohashi in view of Khayrallah (XP-000889044, hereinafter referred to as "Khayrallah"). It should be noted that the detailed rejection rejects claim 6 in view of Wang, Kogiantis, Ohashi and Khayrallah on page11, but then rejects claims 5 and 6 in view of only Ohashi and Khayrallah on page 12. For completeness, the rejection is traversed in view of Wang, Kogiantis, Ohashi and Khayrallah. In the event that this assumption is incorrect, then the present response is equally applicable to only Ohashi and Khayrallah.

The disclosures of Wang, Kogiantis and Ohashi are discussed above. Khayrallah discloses an improved time-diversity method. The number of antennas is grouped based on the depth of the interleaver. Then the antennas are selected according to conventional selection diversity methods such as, to maximize signal strength or signal-to-noise ratio. (See Khayrallah, para. 2, ll.10-11). In another embodiment, the antennas can be cycled in a pre-determined pattern or at random. (See Khayrallah, para. 3, ll. 4-5).

However, Wang, Kogiantis, Ohashi and Khayrallah (or alternatively, only Ohashi and Khayrallah) (either singly or in any permissible combination) fail to describe or suggest the novel concept of receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station to switch between a first antenna and a second antenna. Independent claim 5 positively recites:

> 5. A method of maintaining a controlled quality of service in a wireless communication system, comprising:
> receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled

packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station to switch between a first antenna and a second antenna;

enabling the first antenna to receive a first packet burst in accordance with the predefined schedule;

enabling the second antenna to receive a second packet burst in accordance with the predefined schedule, wherein the first packet burst and the second packet burst comprise identical packets of a common message;

recording the received bursts as soft information in a storage medium; and

combining the soft information from the first and second bursts into a single message. (Emphasis added).

In arguendo, even if Wang, Kogiantis, Ohashi and Khayrallah (or alternatively, only Ohashi and Khayrallah) were combined, the combination would still not describe or suggest all of the limitations of claim 5. Specifically, the combination of Wang, Kogiantis, Ohashi and Khayrallah fails to describe receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station to switch between a first antenna and a second antenna. As discussed above, Wang, Kogiantis and Ohashi (or alternatively, only Ohashi) fail to describe or suggest switching between a first antenna and a second antenna in accordance with a predefined schedule of a sequence of scheduled packet burst. In addition, as discussed above, Wang, Kogiantis and Ohashi cannot be meaningfully combined because there is no motivation to combine the references.

Khayrallah fails to bridge the substantial gap left by Wang, Kogiantis and Ohashi (or alternatively, only Ohashi) because Khayrallah also fails to describe or suggest novel concept of receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station to switch between a first antenna and a second antenna. Khayrallah only discloses that the antennas are selected according to conventional selection diversity methods such as, to maximize signal strength or signal-

to-noise ratio. (See Khayrallah, para. 2, ll.10-11). Therefore, the combination of Wang, Kogiantis, Ohashi and Khayrallah (or alternatively, only Ohashi and Khayrallah) fails to render obvious independent claim 5.

Therefore, independent claim 5 is clearly patentable and not made obvious by Wang, Kogiantis, Ohashi and Khayrallah (or alternatively, only Ohashi and Khayrallah). Furthermore, dependent claim 6 depends from claim 5 and recites additional limitations. As such, and for the exact same reason set forth above, claim 6 is also not made obvious by Wang, Kogiantis, Ohashi and Khayrallah (or alternatively, only Ohashi and Khayrallah). As such, the rejection should be withdrawn.

D. Claim 7

The Examiner rejected claim 7 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Wang, Kogiantis and Ohashi, and further in view of Suzuki (U.S. Patent No. 5,787,122, issued July 28, 1998, hereinafter referred to as "Suzuki"). The rejection is respectfully traversed.

The disclosures of Wang, Kogiantis, and Ohashi are discussed above. Suzuki discloses a method and apparatus for transmitting and receiving encoded data as burst signals using a number of antennas. Specifically, Suzuki discloses a reception system that sends a reception signal encoded and dispersed into a plurality of symbols. (See Suzuki, col. 9, ll. 2-6). The reception signal is then received by a plurality of antennas. (See Suzuki, col. 9, ll. 7-12). Each time the antenna switcher receives burst data, the antenna switcher switches the antenna under control of the communication control unit. The antennas may be selected in the previously determined sequential order or may be randomly selected based on data generated at random. (See Suzuki, col. 9, ll. 13-26). Then the reception signal obtained is demodulated, deinterleaved and reconverted into the original data. (See Suzuki, col. 9, ll. 27-33).

However, the combination of Wang, Kogiantis, Ohashi, and Suzuki fails to describe or suggest the novel concept of receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined

schedule is scheduled by the transmission station to switch between a first antenna and a second antenna. Therefore, the combination of Wang, Kogiantis, Ohashi, and Suzuki fails to render obvious independent claim 5.

Dependent claim 7 depends from claim 5 and recites additional limitations. As such, and for the exact same reason set forth above, claim 7 is also not made obvious by the disclosures of Wang, Kogiantis, Ohashi, and Suzuki. As such, the rejection should be withdrawn.

E. Claim 7

The Examiner rejected claim 7 in the Office Action page 14 under 35 U.S.C. § 103 as being unpatentable over Ohashi, Khayrallah and further in view of Suzuki (U.S. Patent No. 5,787,122, issued July 28, 1998, hereinafter referred to as "Suzuki"). The rejection is respectfully traversed.

The disclosures of Ohashi, Khayrallah and Suzuki are discussed above.

However, the combination of Ohashi, Khayrallah and Suzuki fails to describe or suggest the novel concept of receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule of a sequence of scheduled packet bursts by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station to switch between a first antenna and a second antenna. Therefore, the combination of Ohashi, Khayrallah and Suzuki fails to render obvious independent claim 5.

Dependent claim 7 depends from claim 5 and recites additional limitations. As such, and for the exact same reason set forth above, claim 7 is also not made obvious by the disclosures of Ohashi, Khayrallah and Suzuki. As such, the rejection should be withdrawn.

F. Claims 19 and 20

The Examiner has rejected claims 19 and 20 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Wang, Kogiantis and Ohashi in view of Sampath et al. (U.S. Patent Publication No. 2003/0012308, published January 16, 2003, hereinafter

referred to as "Sampath"). The rejection is respectfully traversed.

The disclosures of Wang, Kogiantis and Ohashi are discussed above. Sampath discloses a method of adaptive channel estimation for wireless systems. Further, Sampath discloses that signals can be sent with training symbols embedded in data symbols. (See Sampath, Abstract).

However, Sampath fails to bridge the substantial gap left by Wang, Kogiantis and Ohashi. Specifically, Sampath also fails to disclose the novel concept of switching between the first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein the predefined schedule is scheduled by a base station, transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of the plurality of packet bursts comprise identical packets of a common message and receiving each of the packet bursts individually at one of a plurality of antennas in accordance with a predefined schedule.

As stated above, the combination of Wang, Kogiantis and Ohashi simply does not describe or suggest the novel concept of switching between the first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein the predefined schedule is scheduled by a base station, transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of the plurality of packet bursts comprise identical packets of a common message and receiving each of the packet bursts individually at one of a plurality of antennas in accordance with a predefined schedule. This deficiency is not bridged by Sampath because Sampath only discloses a method of adaptive channel estimation for wireless systems that include the ability to embed training symbols in data symbols. Therefore, the combination of Wang, Kogiantis, Ohashi and Sampath fails to render obvious independent claim 8.

Dependent claims 19 and 20 depend from claim 8 and recite additional limitations. As such, and for the exact same reason set forth above, claims 19 and 20 are also not made obvious by the disclosures of Wang, Kogiantis, Ohashi and Sampath. As such, the rejection should be withdrawn.

Conclusion

Thus, all of the claims now fully satisfy the requirements of 35 U.S.C. §103. Consequently, all the claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong, Esq. at (732) 542-2280 x130 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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